EFFECT OF VARIABLES ON SOLUBLE MOLYBDENUM

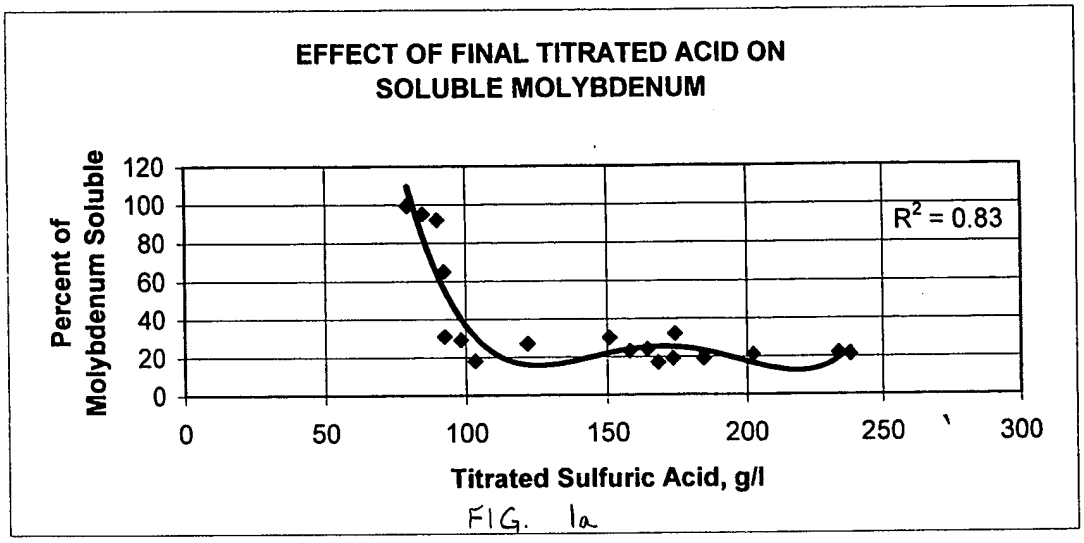

FIG. 1a

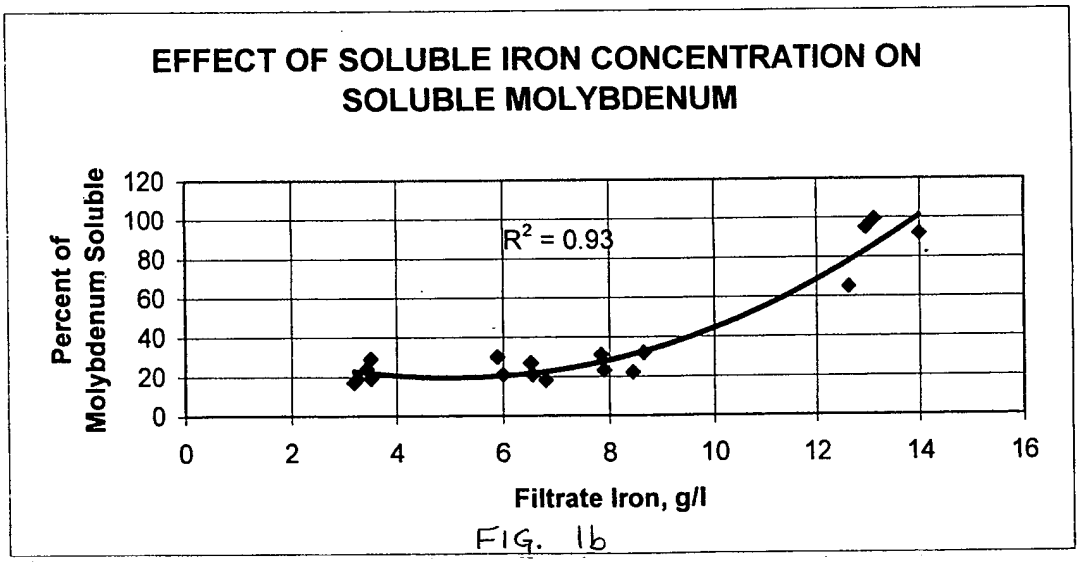

FIG. 1b

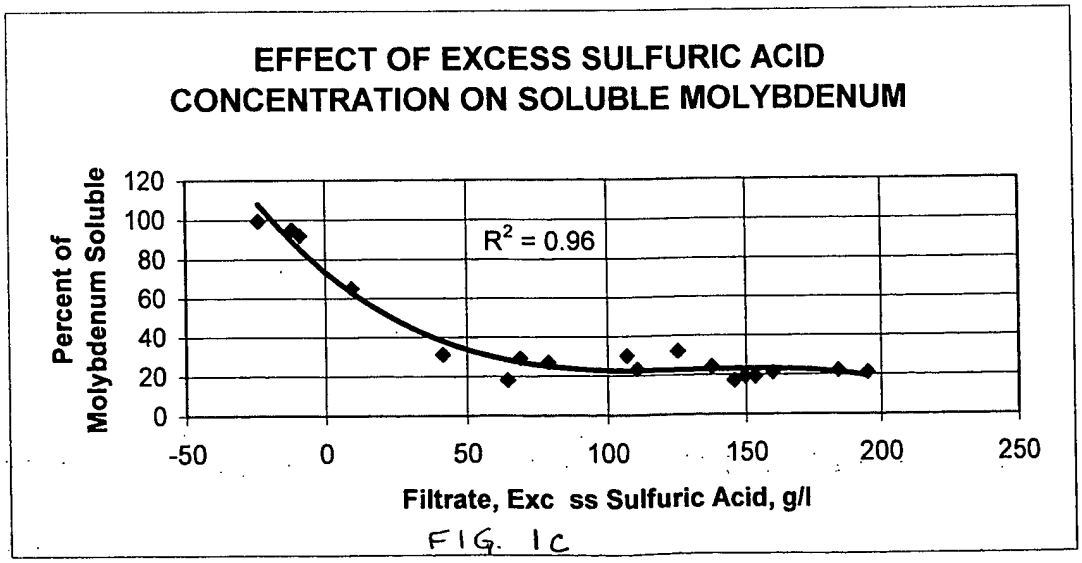

FIG. 1c

EFFECT OFF EXCESS ACID IN FILTRATE ON SOLUBLE MOLYBDENUM

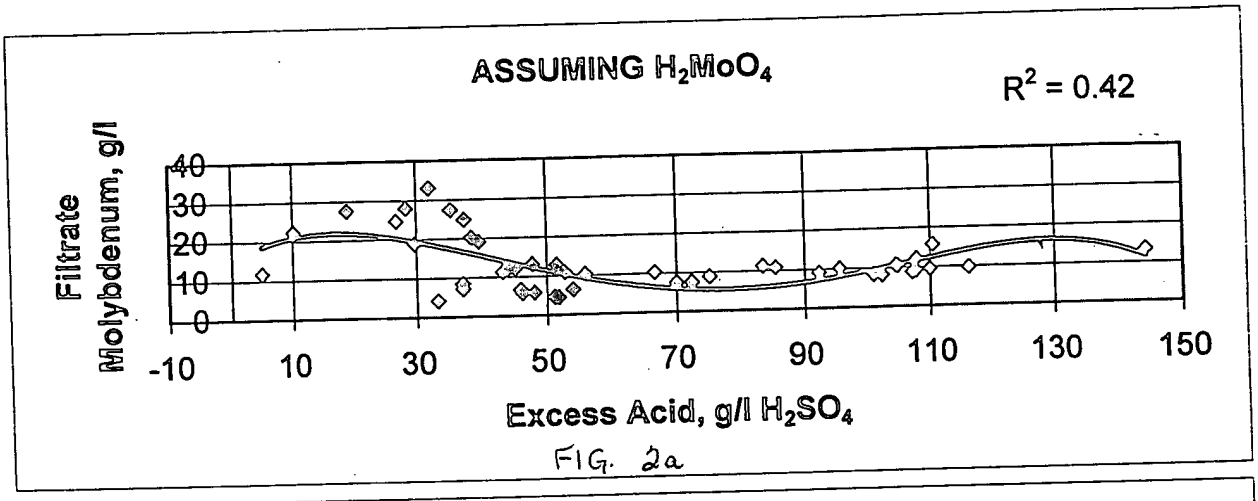

FIG. 2a

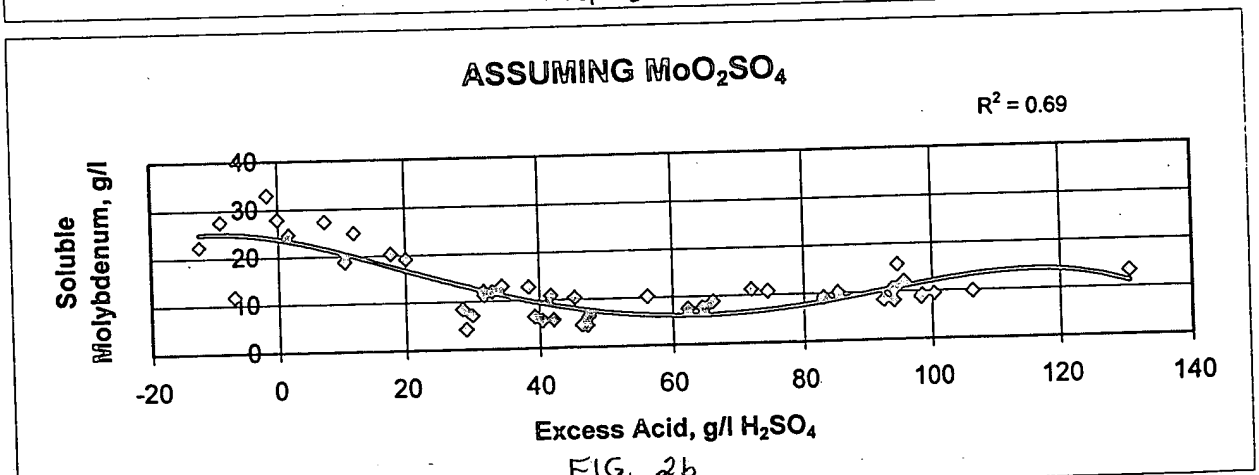

FIG. 2b

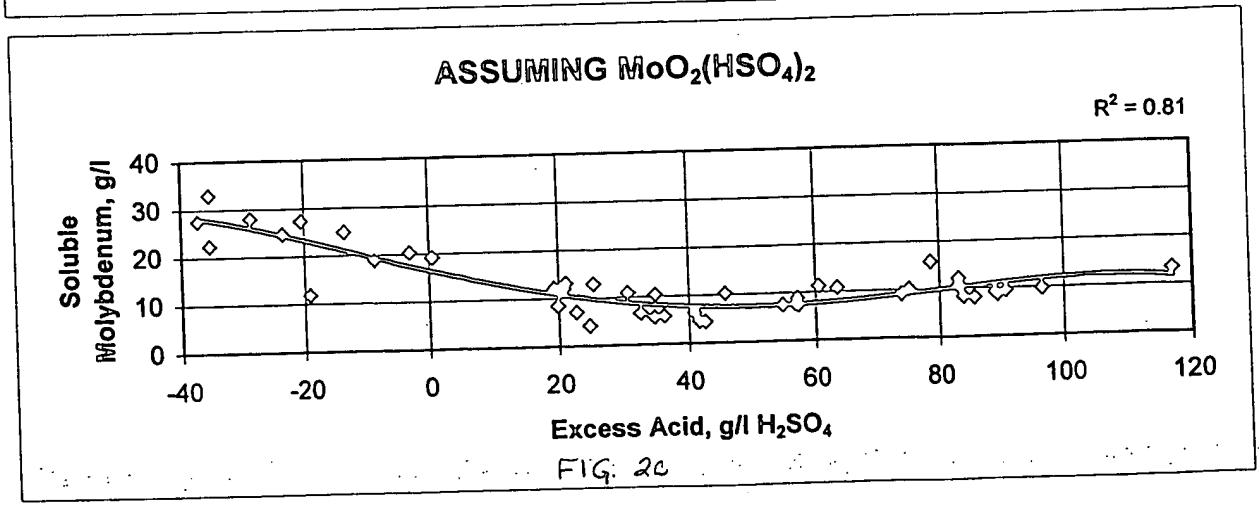

FIG. 2c

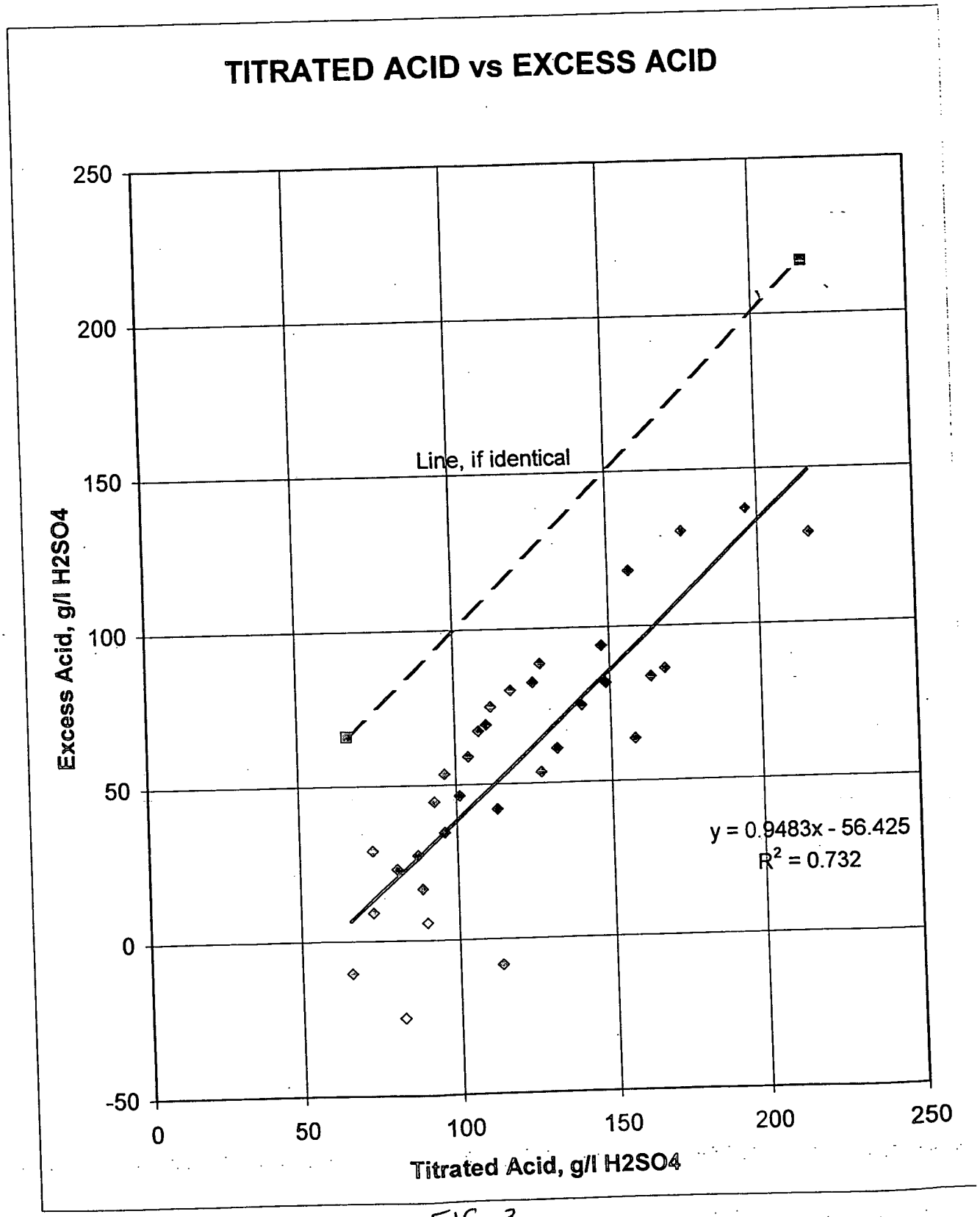
TITRATED ACID vs EXCESS ACID
Excess Acid, g/l H2SO4
Titrated Acid, g/l H2SO4
Line, if identical
y = 0.9483x - 56.425
R2 = 0.732
250
200
150
100
50
0
-50
0
50
100
150
200
250

FIG. 3

MODEL TO PREDICT SOLUBLE MOLYBDENUM AFTER PRESSURE OXIDATION OF MOLYBDENITE

Concentrate and recycle entries are moles added per liter of initial autoclave slurry.

Concentrate			
Moles Mo ("A")	0		
Moles Cu ("B")	0		
Moles Fe ("C")	0	Net acid from concentrate, mol/l ("H")	0.000

Recycle Solution			
Moles Mo ("D")	0		
Moles Cu ("E")	0		
Moles Fe ("F")	0		
Moles H2SO4 ("G"	0	Excess acid, mol/l ("I")	0.00
		Gross initial acid, mol/l ("J")	0.00
		Predicted g/l Fe ("K")	0.00

Initial prediction, Mo g/l ("L")	22.59	
If all MoS2 soluble, g/l Mo ("M")		0
Mo from MoS2 precipitated, g/l ("N")		-22.59
Percent precipitated ("O")		#DIV/0!
Acid from addl pptn, mol/l ("P")		#DIV/0!
Gross excess acid, mol/l ("Q")		#DIV/0!
Final predicted Mo g/l ("R")	#DIV/0!	
Corrected so solubility does not exceed "M", "S"		#DIV/0!

Formulae used in calculations

"H"	- ("B" * 3) - (("C" - "B") * 0.5) + ("A" * 0.2 * 2) + ("C" * 0.3 * 3)
"I"	("G" + (("3 * "D") - (2 * "E") - (3 * "F")) / 2)
"J"	"I" + "H"
"K"	(("C" * 0.7) + "F") * 55.85
"L"	(-10.369 * ("J" ^ 3)) + (38.992 * ("J" ^ 2)) + (-46.065 * "J") + 25.892 + ("K" / 3) - 3.3
"M"	"96 * "A"
"N"	"M" - "L"
"O"	"N" / "M"
"P"	("O" - 0.2) * (A * 4 / 2)
"Q"	"I" + "C" + "P"
"R"	(-10.369 * ("Q" ^ 3)) + (38.992 * ("Q" ^ 2)) - (46.065 * "Q") + 25.892 + ("K" / 3) - 3.3
"S"	if("R" > "M", "M", "R")

Note: Functions in the equations are spreadsheet style, I.e., * is times, / is divide, ^ to the power

FIG. 4

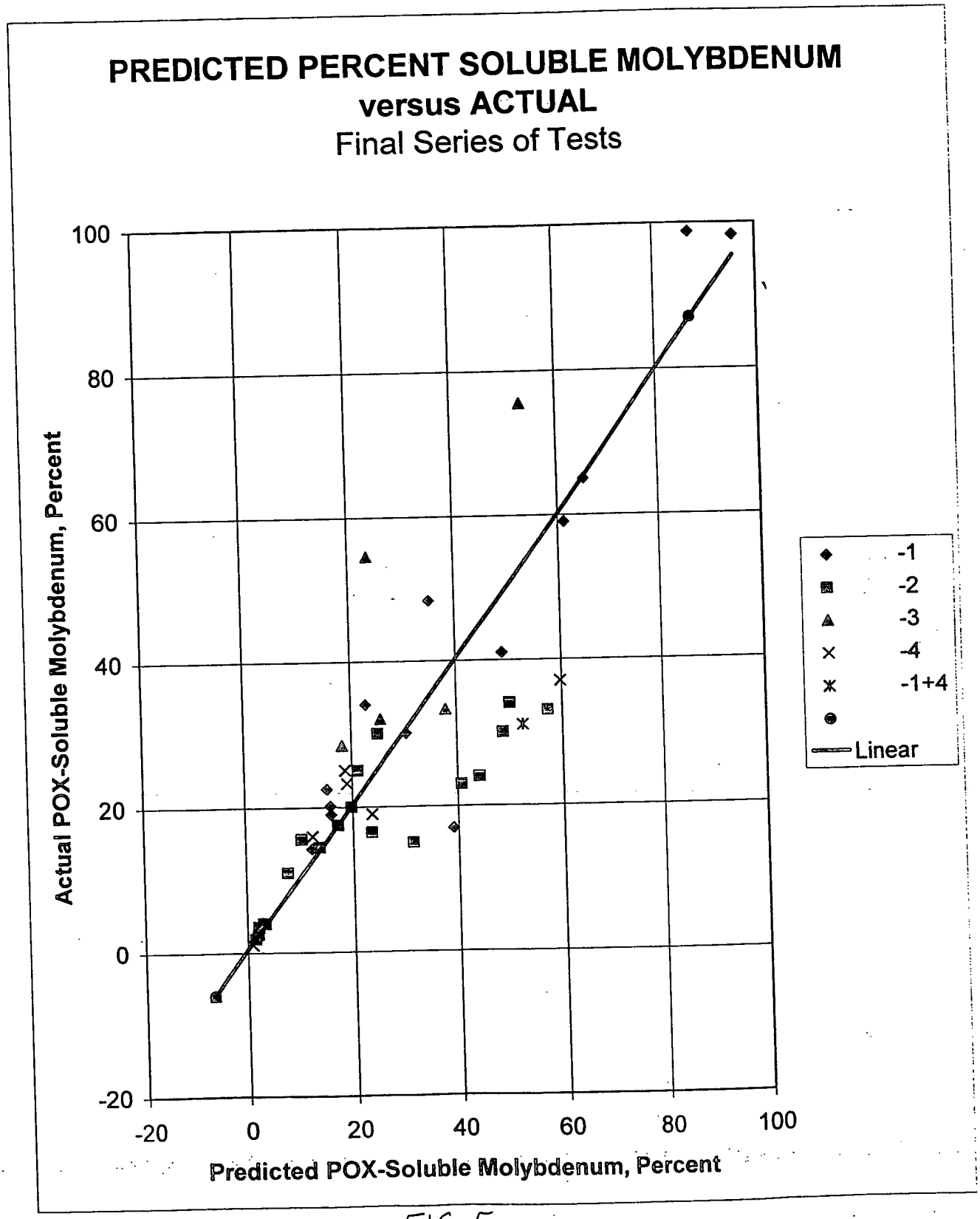
PREDICTED PERCENT SOLUBLE MOLYBDENUM
versus ACTUAL
Final Series of Tests
Actual POX-Soluble Molybdenum, Percent
Predicted POX-Soluble Molybdenum, Percent
100
80
60
40
20
0
-20
-20
0
20
40
60
80
100
-1
-2
-3
-4
-1+4
Linear

FIG. 5